

WHAT IS CLAIMED IS:

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1. A data reproduction apparatus comprising:

10 a Viterbi detection unit having a plurality of detectors
each providing a first partial response signal with a first
constraint length from a first sequence of samples derived from
a first readout signal; and

a connection unit selecting one of connection and
disconnection of the plurality of detectors in the Viterbi
detection unit in response to a timing signal,

15 wherein, when the connection of the plurality of detectors
is selected by the connection unit, the Viterbi detection unit
provides a second partial response signal with a second
constraint length from a second sequence of samples derived
from a second readout signal, the second constraint length being
different from the first constraint length.

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25 2. The data reproduction apparatus of claim 1, wherein the
second constraint length is larger than the first constraint length.

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3. The data reproduction apparatus of claim 1, further
comprising:

a first register storing a first expected value corresponding
to the first partial response signal with the first constraint
length; and

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a second register storing a second expected value
corresponding to the second partial response signal with the
second constraint length.

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4. The data reproduction apparatus of claim 3, wherein one of the first expected value output from the first register and the second expected value output from the second register is selectively set to the Viterbi detection unit in accordance with the timing signal.

5. The data reproduction apparatus of claim 1, wherein the plurality of detectors include branch metric computation units, add-compare-select units, path metric memories, and pass memories, and wherein the connection unit selects one of connection and disconnection of each of the branch metric computation units, the add-compare-select units, the path metric memories and the pass memories in response to the timing signal.

6. The data reproduction apparatus of claim 5, wherein, when the connection of the plurality of detectors is selected, the connection unit changes internal connections of the pass memories from internal connections of the pass memories when the disconnection of the plurality of detectors is selected.

7. The data reproduction apparatus of claim 5, wherein, when the connection of the plurality of detectors is selected, the connection unit changes the individual samples that are supplied to the plurality of detectors, from the individual samples supplied to the plurality of detectors when the disconnection of the plurality of detectors is selected.

8. The data reproduction apparatus of claim 1, further comprising a control unit that controls the connection unit by supplying the timing signal to the connection unit.

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9. A data reproduction method comprising the steps of:
providing a Viterbi detection unit having a plurality of
10 detectors each providing a first partial response signal with a first constraint length from a first sequence of samples derived from a first readout signal; and

selecting one of connection and disconnection of the
plurality of detectors in the Viterbi detection unit in response to
15 a timing signal, wherein, when the connection of the plurality of detectors is selected, the Viterbi detection unit provides a second partial response signal with a second constraint length from a second sequence of samples derived from a second readout signal, the second constraint length being different from
20 the first constraint length.

25 10. The data reproduction method of claim 9, wherein the plurality of detectors include branch metric computation units, add-compare-select units, path metric memories, and pass memories, and wherein, in said selecting step, one of connection and disconnection of each of the branch metric computation
30 units, the add-compare-select units, the path metric memories and the pass memories is selected in response to the timing signal.

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